



Chemistry & Biology Syllabus for Entrance Exam

Academic Year 2010-2011

CHEMISTRY

Solution

Mixtures, Solutions, Elections, Factors affecting solubility, Heat of the solution, Concentration of solution.

Ions in Solution

Dissociation of compounds in solution, Ionization, Strong and week electrolytes, Colligative properties of Solution, Osmosis and osmotic pressure.

Acid and Bases

Properties of acid & bases, Acid uses in industries, Arrhenius acids, Bronsted lowry acid, Lewis acids, Reaction of acids & bases, Amphoteric Substances, Neutralization reaction.

Titration

PH of Solution, Calculation of pH, Indicators and their uses.

Chemical Reactions

Specific heat, Enthalpy change (heat of the reaction), Thermo chemical equation, Molar heat of Formation, Heat of combustion, Calculation of heat change of chemical reactions.

Velocity of chemical Reactions

Mechanism of reactions, Collision theory, Activation energy, Factors affecting reaction rate, Catalyst.

Equilibrium of Chemical Reactions

Reversible reactions, Equilibrium constant, Factor affecting equilibrium, Common ion effect, Equilibrium in acidic, basic and salt solution, Buffer solutions, Solubility product constant

Oxidation & Reduction Reactions

Oxidation, Reduction, Balance of oxidation & reduction reaction, Reducing and oxidizing agents.

Electro Chemistry

Electro chemical cells, Voltaic cells, Non -rechargeable cells, Rust, Electric potential, Electrolytic cell, Electrolysis.

Carbon and Hydrocarbons

Forms of carbons, Organic Compounds, Structural formula of organic compounds, structural isomers, Geometric isomers, Alkanes, Alkenes, Alkynes, Aromatic hydrocarbon.

Other organic compounds

Alcohols, Alkyl halides, Ethers, Aldhydes, Kelones, Carboxylic Acids, Es ters, Amines, Organic Reactions, Polymers

Nuclear Chemistry

Nuclear reaction, Radioactive decay, half -life, Decay series, Artificial transmutation, Nuclear fusion, Nuclear fission.



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BIOLOGY

Tissue

Muscle tissue, Nervous tissue, Epithelial tissue, Connective tissue

Skeleton

Axial skeleton, Appendicular skeleton, Ossification, Joints

Muscular system

Types: voluntary involuntary, Muscular tissue: (skeletal, smooth, cardiac), Muscle contraction, Muscle fatigue

Circulatory system

Cardiovascular system, Lymphatic system.

Cardiovascular system

Heart

Atrium, Ventricle, Valves, Pericardium

Cardiac cycle

Sinoatrial node, Atrioventricular node

Vascular system

Arteries, Blood pressure, Blood capillaries, Vein

Pulmonary circulation

Systemic circulation

Lymphatic system

Lymph, lymph nodes

Blood

Blood constitute: Plasma, RBC, WBC, Platelet

Blood Grouping

A-B-O groups, Rh factor

Respiratory system

External respiration, Internal respiration, Lungs, Gas exchange, Respiratory Mechanism, Respiratory regulatory centers

Immune system

Pathogen, Body reaction to pathogen, Mucous Membrane, Inflammatory response, Complement system, Antigen, Immune

response, Cell-mediated immune response, Humeral immune response, Primary immune response, Secondary immune response.

Immunity and vaccine

Anomalies of Immune system

Allergy, Asthma, Autoimmune system

AIDS

stages of the disease, transmission, Vaccine and treatment.

Nervous system

Neuron, Active potential, Synapse

Central Nervous system

Brain , brain stem, Sp. Cord

Peripheral Nervous system

Nerves, Sensory receptors, motor neurons, Inter neurons

Somatic nervous system

Autonomic Nervous system

Sense organs

Hearing, Vision, Taste, Smell, Touch

Drugs effect on Nervous system

Addiction on psychoactive drug, Alcohol, Nicotine.

Endocrine system

Hormones, Endocrine system, Exocrine system, Endocrine glands, Pituitary gland, Thyroid gland, Adrenal gland, Gonads, Pancreas.

Reproductive system

Male reproductive system, female reproductive system, pregnancy

Genetics

DNA synthesis, DNA replication, RNA, Genome

Chromosomes and Heredity

Sex chromosomes, Autosomes, Mutation, Genetic disorders, DNA technology.